



[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

Emergency Locator Transmitters (ELTs)

AGENCY: Federal Aviation Administration (FAA), DOT

ACTION: Notice recommending voluntary change to securing existing ELTs as specified in Technical Standard Order (TSO)-C126b, 406MHz Emergency Locator Transmitter.

SUMMARY:

The FAA evaluated five separate courses of action with regard to the airworthiness approvals for securing ELTs with hook and loop fasteners. This notice summarizes the inadequacies of hook and loop fasteners as a means for securing ELTs, and avoids placing an undue burden on aircraft owners while acknowledging the voluntary efforts of ELT manufacturers to improve designs.

DATES: Comments must be received on or before *[insert date that is 30 days after date of publication in the FEDERAL REGISTER.]*

FOR FURTHER INFORMATION CONTACT: Ms. Charisse R. Green, AIR-131, Federal Aviation Administration, 470 L'Enfant Plaza, Suite 4102 Washington, DC 20024. Telephone (202) 267-8551, fax (202) 267-8589, e-mail to: Charisse.Green@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

Investigations of some recent aircraft accidents disclosed that ELTs mounted with hook and loop fasteners became dislodged from their mounting trays on impact. The separation of those ELTs from their mounting trays caused their antenna connection to sever, thus rendering the ELTs to be ineffective and unable to perform their intended function.

The FAA Modernization and Reform Act of 2012 (Public Law 112-95), Section 347(b)(1), required the FAA to determine if the ELT mounting requirements and retention tests specified by TSO-C91a and TSO-C126 were adequate to assess retention capabilities in ELT designs. Based on the determination, the Act, in Section 347(b)(2), required the Administrator to make any necessary revisions to the requirements and retention test to ensure ELTs remained properly retained in the event of an aircraft accident.

The FAA evaluated the mounting requirements and retention tests specified in TSO-C91a, TSO-C126, and TSO-C126a. After this evaluation, the FAA determined these standards did not adequately address the use of hook and loop fasteners. Hook and loop fasteners were not an acceptable means of compliance to meet the mounting and retention requirements of the ELT TSOs. While the evaluation of installation approval using hook and loop fasteners may meet the TSO requirements for retention forces in laboratory conditions, accident investigations found these fasteners did not perform their intended function.

FAA Concerns

The agency identified the following concerns after completing its evaluation of the use of hook and loop fasteners:

(1) Hook and loop fasteners fail to retain the ELT when insufficient tension is applied to close the fastener. There is no repeatable method for installation and no method to evaluate the tension of the hook and loop fastener. The allowance for pilots to secure ELTs to the aircraft when changing ELT batteries further increases the potential for inconsistent and unsatisfactory installations;

(2) Hook and loop fasteners closed with proper tension may stretch or loosen over time due to wear, fluids, vibration, and repeated use, leading to insufficient tension to retain the ELT;

(3) Hook and loop fasteners closed with proper tension do not provide stated retention capability due to debris which can contaminate the hooks and loops of the fastener; and

(4) Hook and loop fasteners closed with proper tension degrade due to environmental factors such as repeated heating and cooling cycles, temperature extremes, and contamination resulting from location in equipment areas.

FAA Actions

After publishing our initial intent to withdraw the TSO Authorizations (TSOA) for TSO-C91a, and TSO-C126/126a (See 135 Fed. Reg.41,473 (2012)), the FAA considered five courses of action to mitigate safety concerns with the use of hook and loop fasteners to retain ELTs. These actions addressed design, production, and airworthiness approvals for

both the TSO and retrofit for existing installations. Below is a summary of the actions and their outcomes:

(1) **Recommendation to revise Installation and Maintenance manuals.** The FAA published a Safety Awareness Information Bulletin (SAIB) HQ-12-32, *Hook and Loop Style Fasteners as a Mounting Mechanism for Emergency Locator Transmitters*, on May 23, 2012. The SAIB outlined actions ELT manufacturers could take to improve their installation and maintenance instructions to mitigate the concerns with hook and loop retention.

(2) **Revised TSO-C126a for 406 MHz ELTs.** The FAA published TSO-C126b, *406 MHz Emergency Locator Transmitters*, on November 26, 2012. The TSO precluded the use of hook and loop fasteners as a primary means of securing an ELT in its mounting tray for future ELT designs. TSO-C91a was previously cancelled, and a revision was not needed.

(3) **Determined need for an Airworthiness Directive to correct ELTs with hook and loop fasteners.** The FAA accomplished a Corrective Action Review Board (CARB) to determine if existing airworthiness approvals and existing Technical Standard Order authorizations required 14 CFR Part 39 Airworthiness Directive (AD) action. The CARB determined an AD was not warranted.

(4) **Cease airworthiness approval of ELTs with hook and loop fasteners.** Not necessary. Manufacturers with ELT designs incorporating hook and loop fasteners which failed to perform their intended function in accidents either have revised or are in the process of revising their designs, minimizing the need for policy in this area.

(5) **Withdrawal of ELT TSO Authorizations.** Not pursued. Manufacturers with ELT designs incorporating hook and loop fasteners that failed to perform their intended function have either revised or are revising their designs, minimizing the need for this action.

Conclusion

The FAA issued an SAIB providing ELT installation and maintenance guidance and revised TSO-C126a to eliminate hook and loop fasteners from future TSO designs. The FAA is not issuing an airworthiness directive or a policy disallowing installation approval of ELTs that use hook and loop fasteners. Lastly, the FAA decided not to take the action of withdrawing the TSO authorizations of ELTs utilizing hook and loop fasteners as a mounting mechanism, but ask those aircraft owners /operators with ELTs secured with hook and loop fasteners in their aircraft to voluntarily switch to a metal strap type restraint method. Therefore, the proposed June 30, 2014 date for TSOA withdrawals is no longer applicable.

Issued in Washington, DC, on March 4, 2015.

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